MISSISSIPPI

STATE OF MISSISSIPPI

COST-BENEFIT ANALYSIS GUIDELINES

Mississippi Department of Information Technology Services

2006

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COST-BENEFIT ANALYSIS OVERVIEW

Each year agencies are required to submit an *Information Technology Long-Range Plan* to the Mississippi Department of Information Technology Services (ITS). The plans contain project information and technology expenses as reflected in the agency's budget. ITS reviews each plan to identify projects that could significantly impact the size or performance of the State's computing and networking infrastructure, as well as to determine any strategic interaction these projects may have with new or on-going technology procurements and consulting services throughout the State. As a part of this process, the staff attempts to make recommendations based on the merits of the individual projects, as well as their relative importance to the State. In order to more effectively evaluate each project, guidelines have been developed for conducting a cost-benefit analysis.

Cost-benefit analysis has proven to be a useful tool in evaluating the merits of information systems projects. An accurate cost-benefit analysis provides quantitative data for evaluating the overall costs and benefits of a particular project. This type of analysis will provide the following opportunities for the State:

- Allocating scarce information systems resources among competing demands
- Choosing among given alternatives for automating a particular task
- Auditing existing operations to determine their payoff
- Providing quantitative support for decision making

The guidelines in this document are intended for use by each agency in assessing the costs, benefits, and risks of proposed projects. These guidelines and the resulting output will provide a framework for agency management to evaluate each project and monitor costs and benefits during implementation. These guidelines also provide ITS with the information needed to prioritize projects and recommend funding. **ITS requires the use of these guidelines only on those projects in excess of $1,000,000 which require Board approval or on projects in excess of $250,000 as deemed necessary.**

The following is a summary of steps required to conduct a thorough cost-benefit analysis:

- **Planning**

  The first step in project planning is to prepare your agency's *Information Technology Long-Range Plan*. This document provides a summary of the pertinent information for potential projects your agency has planned over a three year period. This cost-benefit analysis should initially be conducted in conjunction with your long-range plan.

  When a project is first identified, there are many variables which cannot be defined and others which will inevitably change. There is also a tendency to underestimate required resources because all aspects of the project costs may not be known. In order to account for the "unknowns" encountered in the initial planning, uncertainty factors and risk factors are applied. As the project continues to evolve, the cost-benefit should be re-estimated as the unknown variables are reduced.

- **Estimating Costs**

  Developing accurate project costs can be a major challenge for the agency. Since these project estimates will drive your budget request, it is very important that the estimate be carefully developed. Cost estimates defined early in the project life cycle should be as thorough and accurate as possible. In addition, uncertainty factors should be applied to each estimate.

To achieve accurate cost estimates, the project team should review the **Project Cost Checklist** (Exhibit A) to identify potential costs associated with the project. Cost estimates should then be prepared using the **Project Cost Worksheet for Initial (Onetime) Costs** (Exhibit B) and the **Project Cost Worksheet for Annual Operating Costs** (Exhibit C). An uncertainty factor is applied to the initial costs to account for the impact of unknown factors.

- **Identifying Benefits**

  Identifying and quantifying benefits is often considered the most difficult aspect of performing a cost-benefit analysis. However, achieving benefits in excess of costs is a key factor in justifying a project. This step requires that specific functions and features be translated into specific potential benefits to the State.

  The **Project Benefits Checklist** (Exhibit D) can be utilized to identify potential project benefits. This checklist categorizes benefits into five main areas: 1) increased revenue, 2) avoided costs, 3) reduced costs, 4) improved services, and 5) government mandates. Once the potential benefits have been identified, they should be classified as hard tangible, soft tangible or intangible benefits. The **Benefit Classification Worksheet** (Exhibit E) will assist you in this step. Calculations are then used to give dollar values to the tangible benefits. As with costs, a factor must be applied to the calculations to reflect uncertainties. The **Intangible Considerations** form (Exhibit F) should be completed to document the intangible benefits associated with the project.

- **Assessing Risks**

  All projects have risks that may affect the completion and estimated cost of a project. Therefore, the cost-benefit analysis includes a set of guidelines to account for these risks. Some of these risks are addressed by preparing detailed cost estimates and applying uncertainty factors while estimating costs.

  However, other risk factors must also be considered. These risks are more qualitative in nature, such as management support, user involvement, etc. These factors should be evaluated to determine if the project is a high risk or normal risk project. The **Potential Risk Factors** form (Exhibit G) is included to help you determine whether any risk factors apply to the project and whether the impact is great enough to make the project high risk. If any factor is considered high, the **Risk Memorandum** form (Exhibit H) must be completed which documents how the agency plans to mitigate the risk.

- **Preparing the Financial Summary**

  The determination of the costs, benefits, and risks associated with the project is summarized in the **Financial Summary Worksheet** (Exhibit I). Detailed instructions are included for completing this worksheet. This worksheet shows the relationship between costs and benefits with the emphasis placed on the cumulative benefit the project will provide. In addition, this worksheet outlines the projected payback.

ITS is looking forward to working with agencies to evaluate their information system projects using this approach. ITS believes cost-benefit analysis is a useful tool that will enable the State to make better decisions concerning information services projects.

GUIDELINES FOR ESTIMATING COSTS

Developing accurate costs for budget submission is a challenging task. Since underestimating costs can lead to serious funding problems, all project budgets should be carefully developed. Costs should be defined for the project life cycle and should be as thorough and accurate as possible. The following guidelines coincide with the State's budget forms and line items.

- **PERSONNEL COSTS**

  The cost of the agency's information services personnel is typically underestimated in evaluating the overall cost of a project. The estimates should include all information services personnel involved in the project and should be applied over the life of the project.

  Personnel costs, including fringe benefits, are based on workday estimates. The workday calculation is based on 260 workdays per year less the following:

  - 10 holidays
  - 10 days vacation
  - 10 days sick
  - 10 days training
  - 40 days non-productivity (approximately 80% productive per day
  = 180 days per year

  Salary Employee

  (Annual Salary + Fringe Benefits) / 180 Workdays = Cost Per Workday

  Cost per Workday x Total Workday Estimate = Cost Per Employee

  Hourly Employee

  (Hourly Salary + Fringe Benefits) x 8.0 Hours Per Day = Cost Per Workday

  Cost Per Workday x Total Workdays Estimate = Cost Per Employee

- **CONTRACTUAL SERVICES**

  This broad category includes the non-equipment charges related to your information technology project. The categories listed below are identified as they are on the budget forms. A brief explanation is included to help you determine how various costs should be categorized.

  IS Fees - Outside Vendor - This category includes charges for a consultant to perform services such as planning, project management, analysis, design, and software development. It also includes installation charges.

  IS Fees - ITS - This category includes charges for Information Systems Services (ISS) to perform services such as project management, analysis, design, and software development. It also includes procurement fees for both technology and telecommunications acquisitions.

  IS Training/Education - Any IS education and training, including tuition and registration fees, should be identified.

  Computer Center Charges - This category includes all payments made to the State Data Center.

Data Entry - Any data entry related charges necessary for conversion, etc. should be included.

Software Acquisitions - All charges related to the purchase, initial licensing or onetime licensing of any type of software should be identified. **Note: Recurring costs such as annual license fees should be reflected under "Software Maintenance".**

IS Related Rentals - This category includes the monthly charges for the rental of voice mail systems, computer equipment, telephone systems, voice communications equipment, pagers, communication towers, and usage time.

Hardware Maintenance - All charges related to the maintenance and repair of computer hardware and telecommunications equipment should be included.

Software Maintenance - Any costs related to the support and maintenance of mainframe, mid-range, and microcomputer software should be identified. This category includes all recurring license renewal fees. **Note: Initial and onetime charges should be reflected under "Software Acquisitions".**

- **CONTRACTUAL SERVICES - COMMUNICATIONS, TRANSPORTATION, AND UTILITIES**

  All telecommunications and network charges related to the project should be identified.

- **CAPITAL OUTLAY - Computer Equipment/Hardware**

  In preparing the estimated project cost, all equipment needs should be considered. If the equipment will be acquired as part of a lease-purchase agreement, the principal portion of the payment should be included in this category. The interest portion should be reflected below under "Subsidies, Loans, and Grants".

- **SUBSIDIES, LOANS, AND GRANTS**

  If the equipment is being acquired under a lease-purchase arrangement, include the interest charges under this category.

- **OTHER PROJECT COSTS**

  Project costs which are not captured above should be reflected here. Examples include site preparation, forms, supplies, etc.

PROJECT COST CHECKLIST

BUDGET ITEM	ONETIME (✓)	ANNUAL (✓)	DESCRIPTION
PERSONNEL - The last page of the checklist will help you calculate the personnel costs associated with the project.			
Project Manager			
Systems Analysts			
Programmers			
Technical Specialists			
Documentation Specialist			
Computer Operators			
User Personnel			
Functional Team Leader			
Quality Assurance			
LAN Administrator			
Telecommunications Personnel			
PC Support			
IS FEES OUTSIDE VENDOR			
Private Consultants			
Installation			
IS FEES ITS			
IS TRAINING/EDUCATION			
COMPUTER CENTER CHARGES			
DATA ENTRY/CONVERSION			
SOFTWARE ACQUISITIONS			
IS RELATED RENTALS			
HARDWARE MAINTENANCE			
SOFTWARE MAINTENANCE			

Exhibit A

PROJECT COST CHECKLIST

BUDGET ITEM	ONETIME (✓)	ANNUAL (✓)	DESCRIPTION
CONTRACTUAL SERVICES - TC			
COMPUTER EQUIPMENT/HARDWARE			
Local Area Network Components			
Mid-Range Systems			
Microcomputers			
Printers			
Modems			
Controllers			
Terminals			
Other Peripherals			
TELECOMMUNICATIONS HARDWARE			
NETWORK SERVICES			
CABLING			
INTEREST ON LEASE-PURCHASE PAYMENTS			
OTHER			

Exhibit A

PROJECT COST CHECKLIST

POSITION	NUMBER WORKDAYS X COST PER WORKDAY = COST PER EMPLOYEE		
	Number of Workdays	Cost Per Workday	Cost Per Employee

INSTRUCTIONS TO COMPLETE
PROJECT COST WORKSHEET - INITIAL (Onetime) COSTS

The **Project Cost Worksheet - Initial (Onetime) Costs** (Exhibits B) should be used to develop the estimates of initial or onetime costs associated with the planned project. All formulas used in the calculations should be provided, as well as any assumptions that go along with the calculations. The **Project Cost Checklist** (Exhibit A) may be helpful in identifying potential project costs. Please note there is a separate checklist to help you calculate the personnel costs associated with the project.

NOTE: If the project is a major project, a separate worksheet should be completed for each of the three major phases: 1) Analysis, 2) Design, and 3) Development/Implementation. All contractual and equipment charges should be applied in the phase they are incurred.

Planning Phase

Identify which planning phase you are in: 1) Project Proposal, 2) IS Plan, or 3) Project Initiation.

Project Phase Being Planned

Identify the project phase for which this worksheet is being prepared: 1) Analysis, 2) Design, or 3) Development / Implementation.

Uncertainty Factor

An uncertainty factor is applied to each initial (onetime) calculation to account for unknown factors which may have an impact on the cost of the project. The following table should be used to determine which uncertainty factor to use:

Medium Project (up to $250,000)	**Project Proposal**	**IS Plan**	**Project Initiation**
Analysis	5%	5%	0%
Design	10%	10%	5%
Development/Implementation	20%	20%	10%
Large Project ($250,000 +)			
Analysis	10%	10%	0%
Design	20%	20%	10%
Development/Implementation	40%	40%	25%

The uncertainty factor represents a percentage increase amount to apply to the calculated cost amount. Therefore, the percentage should first be added to 1.00 and then multiplied by the calculated cost amount. Example: Calculated Amount x (1.00 + .40) where .40 is the Uncertainty Factor

Year 1 Low through **Total Low**
The figures in the "low" columns represent the initial cost estimates **without** the uncertainty factor.

Year 1 High through **Total High**
The figures in the "high" columns represent the amounts calculated using the uncertainty factor.

PROJECT COST WORKSHEET
INITIAL (Onetime) COSTS

Planning Phase:

Project Phase Being Planned: Analysis

Uncertainty Factor:

BUDGET ITEM	YEAR 1 Low	YEAR 1 High	YEAR 2 Low	YEAR 2 High	YEAR 3 Low	YEAR 3 High	YEAR 4 Low	YEAR 4 High	YEAR 5 Low	YEAR 5 High	TOTAL Low	TOTAL High
IS Personnel Costs												
User Personnel Costs												
IS Fees - Outside Vendor												
IS Fees - ITS												
IS Training/Education												
Computer Center Charges												
Data Entry												
Software Acquisitions												
Capital Outlay - DP												
Capital Outlay - TC												
Other Project Costs												
TOTAL INITIAL COSTS												

PROJECT COST WORKSHEET
INITIAL (Onetime) COSTS

Planning Phase:

Project Phase Being Planned: Design

Uncertainty Factor:

BUDGET ITEM	YEAR 1 Low	YEAR 1 High	YEAR 2 Low	YEAR 2 High	YEAR 3 Low	YEAR 3 High	YEAR 4 Low	YEAR 4 High	YEAR 5 Low	YEAR 5 High	TOTAL Low	TOTAL High
IS Personnel Costs												
User Personnel Costs												
IS Fees - Outside Vendor												
IS Fees - ITS												
IS Training/Education												
Computer Center Charges												
Data Entry												
Software Acquisitions												
Capital Outlay - DP												
Capital Outlay - TC												
Other Project Costs												
TOTAL INITIAL COSTS												

PROJECT COST WORKSHEET
INITIAL (Onetime) COSTS

Planning Phase:

Project Phase Being Planned: Development/Implementation

Uncertainty Factor:

BUDGET ITEM	YEAR 1 Low	YEAR 1 High	YEAR 2 Low	YEAR 2 High	YEAR 3 Low	YEAR 3 High	YEAR 4 Low	YEAR 4 High	YEAR 5 Low	YEAR 5 High	TOTAL Low	TOTAL High
IS Personnel Costs												
User Personnel Costs												
IS Fees - Outside Vendor												
IS Fees - ITS												
IS Training/Education												
Computer Center Charges												
Data Entry												
Software Acquisitions												
Capital Outlay - DP												
Capital Outlay - TC												
Other Project Costs												
TOTAL INITIAL COSTS												

INSTRUCTIONS TO COMPLETE
PROJECT COST WORKSHEET - ANNUAL OPERATING COSTS

The purpose of this worksheet is to identify all annual or ongoing costs that will be incurred during the life of the project. Again, it may be helpful to refer to the **Project Cost Checklist** (Exhibit A) to ensure that no costs have been omitted from your evaluation.

Year 1 through **Total**

Costs should be reflected on the worksheet in the year which they will occur for Year 1 through Year 10. There is no "low" or "high" column for annual costs since uncertainty factors are not applied. The impact of uncertainty has already been accounted for in initial costs and all benefits. The application of additional uncertainty factors to annual cost data does not further improve the accuracy of the cost estimates.

NOTE: While the ITS staff has determined an uncertainty factor is not necessary for these types of costs, you may assign an uncertainty factor if you determine it is appropriate to do so.

PROJECT COST WORKSHEET
ANNUAL OPERATING COSTS

BUDGET ITEM	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	TOTAL
IS Personnel Costs											
User Personnel Costs											
IS Fees - Outside Vendor											
IS Fees - ITS											
IS Training/Education											
Computer Center Charges											
Data Entry											
IS Related Rentals											
Hardware Maintenance											
Software Maintenance											
Contractual Services - TC											
Capital Outlay - DP											
Capital Outlay - TC											
Subsidies, Loans & Grants											
Other Project Costs											
TOTAL ANNUAL COSTS											

BENEFIT GUIDELINES

Achieving benefits in excess of costs is a key factor in justifying a project. However, identifying and quantifying benefits is often viewed as the greatest obstacle to performing a cost-benefit analysis. Problems usually arise from the difficulty of assigning values to benefits. It is the responsibility of the agency to identify, quantify, and document the potential benefits. This section includes guidelines for 1) identifying, 2) classifying, and 3) quantifying potential benefits.

- **IDENTIFYING BENEFITS**

  Identification of benefits may appear simple. However, aside from the most obvious effects of a project, benefits are often difficult to articulate. The **Project Benefits Checklist** (Exhibit D) has a number of potential benefits identified that are often realized as a result of automation. This step examines benefits that 1) increase revenue, 2) avoid costs, 3) reduce costs, or 3) improve service.

- **CLASSIFYING BENEFITS**

  After identifying the potential benefits of your project, benefits should be categorized as "tangible" or "intangible". Tangible benefits should then be classified as either "hard" or "soft" tangible benefits. In order to evaluate the potential benefit and determine its classification, ask yourself these four questions:

  Criteria 1: Is the potential benefit measurable?

  This is the first criteria for tangible benefits. If the answer to this question is "yes", the benefit is tangible and can be quantified. For example, a benefit which increases revenue is a tangible benefit. If the benefit cannot be measured, then it is an intangible benefit.

  Criteria 2: Is the potential benefit directly related to the project?

  This criteria implies a direct "cause and effect" relationship between the project and the benefit. In order to answer this question "yes", the benefit must do more than contribute to the estimated dollar benefit; it must be the only direct factor leading to the benefit. If there are other factors which lead to the benefit or affect the benefit, the answer is "no".

  Criteria 3: Will the potential benefit have a direct impact on revenue?

  The third criteria singles out benefits that directly increase the State's revenue. The benefit must generate revenue above the normal revenue generated by the agency. For example, if the project will improve the collection of receivables, thus increasing cash flow, the benefit has a direct impact on revenue. Therefore, the answer is "yes".

  Criteria 4: Will the potential benefit reduce costs?

  The fourth criterion identifies potential benefits which will reduce current costs. For example, an agency may reduce overtime by implementing a productivity tool which would result in a reduction of current costs. Therefore, the answer is "yes". If the benefit does not reduce a current cost, the answer is "no". If the benefit results in a future cost avoidance, this question should still be answered "no" since avoided costs are not treated the same as reduced costs.

This table depicts how to classify the potential based on the answers to the four questions above. It may be helpful to refer to this table when completing the **Benefit Classification Worksheet** (Exhibit E).

Measurable	Directly Attributable	Increase Revenue	Decrease Cost	Classification
Yes	Yes	Yes		Hard Tangible
Yes	Yes		Yes	Hard Tangible
Yes	Yes	No	No	Soft Tangible
Yes	No	Yes/No	Yes/No	Soft Tangible
No				Intangible

- **QUANTIFYING TANGIBLE BENEFITS**

  After the tangible benefits (hard and soft) have been identified, the next step is to quantify the benefits. You should distinguish between onetime savings and annual savings. Onetime savings are characterized by a single dollar amount realization. They usually occur in the first year after the installation. Ongoing savings are typically operating and personnel cost reductions that are documented as annual savings.

  When calculating annual savings or onetime savings that will occur in the future, use current year dollars. A present value calculation is not required by the agency. However, the ITS staff may calculate the present value. It is important to document savings over the life cycle of the project.

  In addition, an uncertainty factor should be applied to the calculated amount. This factor is applied to account for the lack of complete information. For soft benefits, the uncertainty factor is determined by the agency. The amount chosen should be well-supported by documentation. For hard benefits, the uncertainty factor amount applied depends on where the cost-benefit analysis is in the project life cycle as follows:

  Project Proposal 20%
  IS Plan 15%
  Project Initiation 10%

- **INTANGIBLE BENEFITS**

  Intangible benefits are those benefits that are not generally measurable in terms of dollars. In state government, these benefits are often more important than the tangible ones. Most state agencies strive to provide the highest quality service to its constituents. However, improving service through the use of automation is often difficult to quantify monetarily. Rather than forcing calculations to prove benefits, it is more practical to accept the premise that information systems often provide benefits that are important, but not measurable as a result of increased revenue or reduced costs.

  It is recommended, however, that you attempt to measure intangible benefits in other quantifiable ways such as: reduce error rate by 15%, reduce average customer response time by 2 days, etc. Detailed documentation should be provided for intangible benefits. There are instances in which benefits that are normally considered non-quantifiable can be measured. The following examples of intangible benefits, under the right circumstances, may be quantified in dollar savings. Examples are also included of other possible measures for these benefits which do not readily appear to be quantifiable:

1. **Improve Service to the Public**

   Dollar Benefit: The project may result in more clients using a particular service. If the service generates revenue, an increased usage of the service could also increase the total revenue of the service. In this instance, the increased volume could be estimated by reviewing volume increases of other agencies or states that have implemented a similar system. Otherwise, increases will have to be estimated on assumptions unique to your project. It is important to document your assumptions. The following formula should be used once the volume has been estimated:

   Current Revenue / Current Volume = Per Unit Revenue
   Per Unit Revenue x Net Volume Increase = Increase In Revenue

   Other Measurable Benefit: If the improved service cannot be measured by increased revenue or dollar savings, consider other types of measures.

2. **More Flexibility, Faster Decision Making, Better Management**

   Dollar Benefit: These benefits can result in increased efficiency. Since increased efficiency will be unique to each project, be sure to document all assumptions when calculating cost savings.

   Other Measurable Benefit: If it is not possible to document increased efficiency by calculating a cost savings, you should describe in detail how the proposed system will provide faster decision making or more flexibility. For example, if an agency currently monitors project assignments on the basis of a report that is generated weekly, a new tracking system that provides online project information will enable management to more accurately assess the workload of the department on a daily basis. Therefore, the new system could potentially provide faster decision making and better management for the agency. Calculations can be made based on comparisons between the two systems in order to produce a measurable benefit.

3. **Reduce Errors**

   Dollar Benefit: This can lead to a direct reduction in labor if the errors must be reviewed and corrected manually. Use the personnel cost calculations described previously to calculate the benefit.

   If sanctions can be assessed against the agency as a result of the error rate, the amount of the sanction should be identified as an avoided cost.

   Other Measurable Benefit: If you determine that this benefit cannot be measured in terms of dollars, the reduction should still be estimated. For example, if an agency has documented the current error rate at 20%, estimates should be made to determine what the error rate will be with the proposed system, thus producing a measurable benefit.

PROJECT BENEFITS CHECKLIST

	ONETIME BENEFIT (✓)	ANNUAL BENEFIT (✓)	DESCRIPTION
INCREASED REVENUE			
Increase agency revenue			
Increase federal or grant funds			
AVOIDED COSTS			
Avoid additional onetime costs			
Avoid additional annual costs			
REDUCED COSTS			
Reduce agency labor			
Reduce contract labor			
Reduce materials/supplied			
Inventory reduction			
Reduce work space			
Increase work efficiency			
Increase resource efficiency			
Increase information accuracy			
Reduce processing time			
Reduce response time			
Reduce training			
Reduce software charges			
Reduce maintenance			
IMPROVED SERVICES			
Increase service to the public			
Increase flexibility			
Improve staff morale			
Provide additional information			
Reduce error rate			
Improve accuracy			
Better public image			
Improve credibility			
Provide faster decision making			
Improve accountability			
Improve management			
Improve analysis of trends			
Improve forecasting ability			
Speed information flow			
Provide better management			
GOVERNMENT MANDATES			
Satisfy federal requirements			
Satisfy state requirements			

INSTRUCTIONS TO COMPLETE
BENEFIT CLASSIFICATION WORKSHEET

The **Benefit Classification Worksheet** (Exhibit E) is used to help develop the potential benefits associated with a particular project. The worksheet will provide estimates of onetime and annual benefits. A detailed description of the calculations and assumptions that were used in quantifying the benefits should be included.

(1) Benefit Description

Describe the benefit associated with the project. The **Project Benefits Checklist** (Exhibit D) includes a list of potential benefits. This form may be helpful in determining what benefits will be realized as a result of the project.

(2) Measurable

Use a check mark (✓) to indicate that the benefit is measurable. If the benefit can be quantified, it is measurable.

(3) Directly Attributable

Use a check mark (✓) to indicate that the benefit is directly attributable. If the project is the only direct factor leading to the benefit, it is directly attributable.

(4) Increased Revenue

Use a check mark (✓) to indicate that increased revenue will occur as a result of the project.

(5) Decreased Cost

Use a check mark (✓) to indicate the project will result in a cost savings or provide a future cost avoidance.

(6) Classification

Classify the benefit as Hard Tangible, Soft Tangible, or Intangible. Refer to the "Benefit Guidelines" described previously. By answering the four questions and referring to the table, you should be able to determine how the potential benefit should be classified.

(7) Uncertainty Factor

The uncertainty factor is the percentage which is applied to the calculated amount which accounts for the lack of complete information. The factor used for hard benefits depends on where the cost-benefit analysis is in the project development life cycle. The following percentages should be used:

Project Proposal	20%
IT Plan	15%
Project Initiation	10%

The factor used for soft benefits is defined by the agency or institution and should reflect the uncertainty of realizing the specific benefit. An explanation supporting the percentage should be provided.

(8) Onetime Benefit

Identify benefits which are realized only once.

(9) Annual Benefit

Identify benefits which are realized annually or an ongoing basis.

(10) Onetime Low

This column reflects the calculated onetime benefits multiplied by the Uncertainty Factor.

Onetime Benefit x (1.00 - Uncertainty Factor)

(11) Annual Low

This column reflects the calculated annual benefits multiplied by the Uncertainty Factor.

Annual Benefit x (1.00 - Uncertainty Factor)

A. Totals

A.1. Increased Revenue Benefits (Hard)

Identify all benefits that will result in increased revenue; obtain the totals for columns 10 and 11.

A.2. Decreased Costs Benefits (Hard)

Identify all benefits that will result in decreased costs; obtain the totals for columns 10 and 11.

A.3. Subtotal (Hard)

Add Row A.1. Plus Row A.2. For columns 10 and 11.

B. Soft Benefits

Identify all soft benefits, and obtain the totals for columns 10 and 11.

C. Total Benefits

Add Row A.3. "Subtotal (Hard)" plus Row B. "Soft Benefits" for columns 10 and 11.

BENEFIT CLASSIFICATION WORKSHEET

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
BENEFIT DESCRIPTION	**MEAS. (✓)**	**DIR. ATT. (✓)**	**INC. REV. (✓)**	**DEC. COST (✓)**	**CLASSIFICATION**	**UNCERTAINTY FACTOR**	**ONETIME BENEFIT**	**ANNUAL BENEFIT**	**ONETIME LOW**	**ANNUAL LOW**
1.										
2.										
3.										
4.										
5.										
6.										
A. Totals										
1. Increased Revenue Benefits (Hard)										
2. Decreased Costs Benefits (Hard)										
3. Subtotal (Hard)										
B. Soft Benefits										
C. Total Benefits										

INSTRUCTIONS TO COMPLETE
INTANGIBLE CONSIDERATIONS FORM

The **Intangible Considerations** form (Exhibit F) is used to identify the intangible benefits associated with a particular project. As previously stated, intangible benefits are often more important than the tangible ones. This is especially true of projects that are undertaken in an effort to improve the services provided to the agency's constituents. This form provides you with an opportunity to document the intangible considerations of your project.

Intangible Benefit 1

Description:

Describe the intangible benefit expected to be realized by implementing the project.

Measures:

Describe the measurement that will be used to determine if this benefit was realized as a result of this project. Examples include:

- Reduce error rate by 10%
- Improve customer response time by two days

Assumptions:

Document the assumptions related to the realization of the intangible benefit.

Responsibility:

Identify the person responsible for developing or reviewing the intangible benefit.

Intangible Benefit 2

Include all intangible benefits associated with the project.

Description:

Measures:

Assumptions:

Responsibility:

INTANGIBLE CONSIDERATIONS FORM

INTANGIBLE BENEFIT 1

DESCRIPTION:

MEASURES:

ASSUMPTIONS:

RESPONSIBILITY:

INTANGIBLE BENEFIT 2

DESCRIPTION:

MEASURES:

ASSUMPTIONS:

RESPONSIBILITY:

INTANGIBLE BENEFIT 3

DESCRIPTION:

MEASURES:

ASSUMPTIONS:

RESPONSIBILITY:

- **IDENTIFYING POTENTIAL RISKS**

One of the key indicators of the success of a project is the risk involved with the development. Risk is relevant because costs, benefits, and risks are interdependent. The risk of a project is determined by the relative size and variability of its costs and benefits. Project risks are not certainties, but they point toward key potential issues that should be watched for and managed, if possible. Being aware of possible pitfalls and developing a plan to address such situations may prevent some risks from becoming realities.

Project risks can generally be classified into types of risk, any or all of which may result in a failure of the system to deliver the planned benefits at the planned level of costs:

Behavioral risk relates to the way agency personnel may react to the proposed system. This includes agency management and the information services staff, as well as the users of the system.

Project management risk corresponds to the ability of the agency to plan and control the system life cycle process.

Operational risk is associated with random events that affect routine, day-to-day activities.

Technical risk is associated directly with information technology (hardware, software, telecommunications). It is both an inherent risk relating to the technology itself, and a risk relative to the agency and its knowledge of technology.

Functional risk relates to the functions to be performed by the system. It depends on both the inherent stability of the system, as well as the knowledge level of the user department and the system development team.

- **DEALING WITH RISKS**

To help ensure the risk is adequately accounted for in all projects, a list of qualitative potential risk factors is included on the **Potential Risk Factors** form (Exhibit G). This list will help you determine the risk factors associated with your project. These factors represent known variables which can have an adverse effect on the outcome of the project. This list, however, is not all inclusive. There may be risks associated with your project that are not identified, but should still be addressed.

For each high risk factor identified, the **Risk Memorandum** form (Exhibit H) should be completed. The purpose of this step is to document how high risk factors associated with the project will be handled. The following steps should be taken:

1. Describe the risk factor and its impact on the proposed project.
2. Document the approach to mitigate the risk factor.
3. Provide detailed calculations of the impact on cost estimates.
4. Adjust cost estimates accordingly.

INSTRUCTIONS TO COMPLETE
POTENTIAL RISK FACTORS FORM

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1. Review each "Risk Factor" and determine which category the risk falls in:

   High
   Normal
   Not Applicable (N/A)

   Project risks should be reviewed by the Project Manager, Project Director (if there is one), designated user personnel, and other project team members.

2. For each risk factor determined to be "high", complete the **Risk Memorandum** form (Exhibit H).

3. Include any calculations due to risk factors on the **Project Cost Worksheets** (Exhibits B and C) and the **Financial Summary Worksheet** (Exhibit I).

POTENTIAL RISK FACTORS

Risk Factor	High Risk	Normal Risk	High (✓)	Normal (✓)	N/A (✓)
Behavioral Risks					
Management Participation	Management not actively involved	Management committed to project			
User Support	Users are not committed to project	Strong user sponsorship			
User Participation	Minimum user participation	User personnel actively participating in project			
Project Management Risks					
Project Length	Over 1 year	1 year or less			
Project Team Size	Over 10 people	10 people or less			
Project Management Experience	No prior experience in this type project	Experience in this type project			
Cost/Benefit Analysis	The project estimates used to calculate the cost/ benefit analysis are not based on ITS guidelines	The project estimates are based on quotes and the analysis has been approved by ITS			
Operational Risks					
Mainline Impact	Major impact on agency's goals	Minimal impact on agency's goals			
User Impact	Significant impact on daily user operations	Minimal impact on user daily operations			
Number of Outside Entities to Coordinate	2 or more	Less than 2			
Scheduled Completion	Absolute deadline with little delay tolerance because other development depends on the Completion	Completion dates are set, but no other development or processing depends on completion			
Technical Risks					
Hardware/Software	Vendor, equipment, or software does not have a proven record of performance	Vendor and/or specific equipment or software has proven performance			
System Complexity/ New Technology	Pioneering, new hardware/software, extensive software modifications	No significant unique or new considerations, minor software modifications			
Project Size	More than 1,000 workdays	Less than 1,000 workdays			
Functional Risks					
Project Team Experience	Project team has inexperienced personnel or lack of required skills for project	Project team staffed with experienced personnel with required technical skills			
% of Time Key Members Dedicated to Project	Less than 50%	Over 50%			
Quality of Data to Convert	Complex data conversion requirements or questionable data integrity	Data conversion is straight-forward			

INSTRUCTIONS TO COMPLETE
RISK MEMORANDUM FORM

For each high risk factor identified, the **Risk Memorandum** form should be completed. The purpose of this step is to document how high risk factors associated with the project will be handled. The following information should be completed:

Area That Poses Risk

Describe the functional, technical, or other area that poses the risk as identified on the **Potential Risk Factors** form (Exhibit G). This narrative should include a clear description of the risk and the causes of the risk.

Risk Description

Describe the risk in detail.

Seriousness

Assess the seriousness of the risk as "high", "medium", or "low".

To determine the most appropriate rating, ask yourself this question: If the potential risk actually occurred, what would be the effect on the State, the user, the project team, and the overall success of the project?

Probability

Assess the probability of the risk as "high", "medium", or "low".

To determine the most appropriate rating, ask yourself this question:
If no action is taken to prevent the risk, what is the possibility of it occurring?

Management of Risk

1. Describe the course of action or contingency plan for dealing with or monitoring the risk. This narrative should include the risk management steps that will be taken.

2. If the risk has a known negative impact on the cost or benefit estimates, be sure to provide detailed calculations as part of this document.

3. Any adjustments should be reflected on the appropriate worksheets and in your long-range plan.

Responsibility

Identify the person responsible for managing the contingency plan for dealing with or monitoring the risk.

Exhibit H

RISK MEMORANDUM FORM

AREA THAT POSES RISK	RISK DESCRIPTION
RATINGS	
SERIOUSNESS:	**PROBABILITY:**

MANAGEMENT OF RISK	RESPONSIBILITY

INSTRUCTIONS TO COMPLETE
FINANCIAL SUMMARY WORKSHEET

A. Hard Dollar Benefits

A. 1. Increased Revenue - Onetime

This row summarizes the onetime benefits realized as a result of increasing revenue. Refer to the **Benefit Classification Worksheet**, Row A.1. (Increased Revenue Benefits), Column 10 (Onetime Low). Enter this dollar amount on the Financial **Summary Worksheet** for each year onetime revenue will occur.

Determine the 10-year sum total.

A. 2. Increased Revenue - Annual

This row summarizes the ongoing benefits realized by increasing revenues. Refer to the **Benefit Classification Worksheet**, Row A.1. (Increased Revenue Benefits), Column 11 (Annual Low). Enter this dollar amount on the Financial **Summary Worksheet** for each year revenue will be realized.

Determine the 10-year sum total.

A. 3. Decreased Costs - Onetime

This row summarizes the onetime benefits realized by reducing costs. Refer to the **Benefit Classification Worksheet,** Row A.2. (Decreased Cost Benefits), Column 10, (Onetime Low). Enter this dollar amount on the Financial **Summary Worksheet** for each year a onetime cost savings will be realized.

Determine the 10-year sum total.

A. 4. Decreased Costs - Annual

This row summarizes the ongoing benefits realized by reducing costs. Refer to the **Benefit Classification Worksheet**, Row A.2. (Decreased Costs Benefits), Column 11, (Annual Low). Enter this dollar amount on the **Financial Summary Worksheet** for each year ongoing cost savings will be realized.

A. 5. Total Quantifiable Benefits

Obtain the sum of A.1. plus A.2. plus A.3. plus A.4. for Year 1 through Year 10. Determine the 10-year sum total. "Total Quantifiable Benefits" (Row A.5., Column 12) should equal Row A.3., Column 10 plus Row A.3., Column 11 from the **Benefit Classification Worksheet.**

B. Project Costs

B. 1. Initial Costs

Refer to the **Project Cost Worksheet for Initial (Onetime) Costs** for each phase of the project. For each year, summarize the high estimates for "Total Initial Costs". Enter these figures into the Financial **Summary Worksheet.** In most cases, initial or onetime costs will be incurred in Year 1 through Year 5 of development.

Determine the sum total for Row B.1., Column 12.

B. 2. Annual Costs

Annual Costs are defined to mean yearly operating costs of the new system. These annual costs may be constant from year to year or may vary, as in the case of a phased or partial implementation. Refer to the **Project Cost Worksheet for Annual Operating Costs**. This worksheet contains ongoing project costs extending out to ten years from the project start-up. Enter the figures into the **Financial Summary Worksheet**, making sure that the relationship between specific costs and years is maintained.

For example, if the **Project Cost Worksheet for Annual Operating Costs** contains the following "Total Annual Costs" for Year 1 through Year 7:

100 100 200 200 200 200 300

Then the Financial **Summary Worksheet**, Row B.2., Year 1 through Year 7, should contain these exact costs in the exact years as they are shown in the **Project Cost Worksheet for Annual Operating Costs**:

100 100 200 200 200 200 300

Determine the 10-year sum total.

B. 3. Total Costs

Obtain the sum of the "Initial Costs" (Row B.1.) and "Annual Costs" (Row B.2.) for Year 1 through Year 10. Determine the 10-year sum total.

C. Net Benefit (Cost)

For Year 1 through Year 10 (Column 2 through Column 12), subtract the "Total Costs" from the "Total Quantifiable Benefits". **Net costs are represented within parentheses, while net benefits are represented as normal numbers.**

Obtain the 10-year net total.

D. Cumulative Benefit (Cost)

For Year 1 through Year 10 (Column 2 through Column 12), obtain running totals from Line C., "Net Benefit".

For example, if Year 1 incurred a cost of $1,000, Year 2 enjoyed a benefit of $1,000, and Year 3 enjoyed a benefit of $1,000, the Year 1, Year 2, and Year 3 "Cumulative Benefit (Cost)" would appear as follows:

Year 1	Year 2	Year 3
($1,000)	0	$1,000

The representation of cumulative benefits and (costs) along a time line covering Year 1 through Year 10 provides insight into when the project's annual net benefits will completely cover the project's costs.

This payback analysis can be seen using the example above. In this example, the annual net benefits equal exactly the costs at the end of Year 2 (as shown by Net Benefit = $0). Therefore, this example project takes exactly 2.0 years before net benefits equal project costs.

In most cases, the payback analysis will not yield whole integers. Usually, the period in which net benefits exceed project costs can be seen in the transition from ( ) to "regular" numbers. Numbers within parentheses represent net costs, while numbers shown normally represent net benefits. Therefore, the point at which net benefits exceed project costs can be seen at the point along the timeline (Year 1 to Year 10) when the "Cumulative Benefits" figures in Row D change from "within parentheses" to "without parentheses".

Because only hard dollar benefits were included in this analysis, Row D represents hard dollar payback.

E. Soft Dollar Benefits

E.1. Soft Dollar Benefits Onetime

This row summarizes the onetime soft dollar benefits. Refer to the **Benefit Classification Worksheet**, Row B., "Soft Benefits". Obtain the figure from Column 10, and enter this amount on the Financial **Summary Worksheet** in Row E.1. for the years in which onetime soft benefits will be realized.

Determine the 10-year sum total for Row E.1.

E.2. Soft Dollar Benefits - Annual

This row summarizes the recurring soft benefits. Refer to the **Benefit Classification Worksheet**, Row B., Soft Benefits. Obtain the figure from Column 11, and enter this amount in the **Financial Summary Worksheet** in Row E.2. for the years in which annual soft benefits will be realized. In most cases, annual soft benefits will be realized after implementation is completed.

Determine the 10-year sum total for Row E.2.

E.3. Total Soft Benefits

Obtain the sum of E.1. Plus E.2. for Year 1 through Year 10. Determine the 10-year sum total.

F. Net Benefit (Cost) with Soft Benefits

Add Row C. "Net Benefit" to Row E.3. "Total Soft Benefit" for Year 1 through Year 10. Obtain the 10-year net total for Row F.

This calculation provides the total hard plus soft dollar benefits per year. These yearly net figures represent the yearly funding impact of the project considering both hard and soft dollar benefits.

G. Cumulative Benefit (Cost) with Soft Benefits

For Year 1 through Year 10 (Column 2 through Column 12) obtain running (cumulative) totals from Line F. "Net Benefit (Cost) With Soft Benefits".

For example, if Year 1 incurred a net cost of $1,000, Year 2 enjoyed a benefit (with soft benefits included) of $2,000, and Year 3 enjoyed a benefit (with soft benefits included) of $2,000, the "Cumulative Benefit (Cost)" of Year 1 through Year 3 would appear as follows:

Year 1	Year 2	Year 3
($1,000)	$1,000	$3,000

Note that the project appears more favorable with the inclusion of soft benefits.

The representation of cumulative hard and soft benefits and (costs) along a time line covering Year 1 through Year 10 provides insight into when the projected annual net benefits will completely cover the project costs.

This payback analysis (hard and soft dollars) can be seen using the example above. In this example, the project benefits are greater than the initial costs by $1,000 at the end of Year 2. At the end of Year 1, however, the initial costs were $1,000 greater than the benefits. This means that sometime between the end of Year 1 and the end of Year 2 the benefits exactly equaled the costs, and then the benefits became

greater than the costs. By the end of Year 3, the benefits have grown to $3,000 greater than the initial costs.

The period in which net benefits exceed initial costs can be seen in the transition of numbers from ( ) to "regular". Numbers within parentheses represent net costs, while numbers shown normally represent net benefits. Therefore, the point at which net benefits exceed project costs can be seen at the point along the timeline (Year 1 through Year 10) at which the numbers in Row D change from within parentheses to without parentheses.

H. Year of Payback (Hard) and (Hard Plus Soft)

Based on a review of Row D, "Cumulative Benefit (Cost)", determine in which year the "zero" or "payback" point is reached (Hard Dollar). As discussed in the Section D instructions, the payback period can be identified by the transition of net numbers in parentheses to normal numbers.

In the example provided in Section D., the "Year of Payback (Hard)" is Year 2. Year 2 is the year in which net benefits equal project costs. Year 1 is represented by a number within parentheses, while Year 2 is represented by a normal number.

Based on a review of Row G., "Cumulative Benefit with Soft Benefits", determine in which year the "zero" or "payback" point is reached (hard and soft dollar). As discussed in the Section D. and Section G. instructions, the payback period can be identified by the transition of net numbers in parentheses to normal numbers.

FINANCIAL SUMMARY WORKSHEET

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
COST/BENEFIT	**YEAR 1**	**YEAR 2**	**YEAR 3**	**YEAR 4**	**YEAR 5**	**YEAR 6**	**YEAR 7**	**YEAR 8**	**YEAR 9**	**YEAR 10**	**TOTAL**
A. Hard Dollar Benefits											
1. Increased Revenue - Onetime											
2. Increased Revenue - Annual											
3. Decreased Costs - Onetime											
4. Decreased Costs - Annual											
5. Total Quantifiable Benefits											
B. Project Costs											
1. Initial Costs											
2. Annual Costs											
3. Total Costs											
C. Net Benefit (Cost)											
D. Cumulative Benefit (Cost)											
E. Soft Dollar Benefits											
1. Onetime											
2. Annual											
3. Total Soft Benefits											
F. Net Benefit (Cost) with Soft Benefits											
G. Cumulative Benefit (Cost) with Soft Benefits											
H. Year of Payback	**(Hard)**		**(Soft)**								

Cost/Benefit Calculations

Total Quantifiable Benefits - Total Costs = Net Benefit

Net Benefit from Year 1 + Net Benefit from Year 2 = Cumulative Benefit for Year 2 *Repeat for Years 3 through 10.

Net Benefit + Total Soft Benefits = Net Benefit with Soft Benefits

Net Benefit with Soft Benefits from Year 1 + Net Benefit with Soft Benefits from Year 2 = Cumulative Benefit with Soft Benefits for Year 2 *Repeat for Years 3 through 10

APPENDIX
FORMS FOR COMPLETION

Please use the forms in this section for completing and returning to ITS.

- PROJECT COST CHECKLIST
- PROJECT COST WORKSHEET INITIAL (ONETIME COSTS)
- PROJECT COST WORKSHEET ANNUAL OPERATING COSTS
- PROJECT BENEFITS CHECKLIST
- BENEFIT CLASSIFICATION WORKSHEET
- INTANGIBLE CONSIDERATIONS FORM
- POTENTIAL RISK FACTORS
- RISK MEMORANDUM FORM
- FINANCIAL SUMMARY WORKSHEET

PROJECT COST CHECKLIST

BUDGET ITEM	ONETIME (✓)	ANNUAL (✓)	DESCRIPTION
PERSONNEL - The last page of the checklist will help you calculate the personnel costs associated with the project.			
Project Manager			
DP-Systems Analysts			
DP-Programmers			
DP-Technical Specialists			
Documentation Specialist			
DP-Computer Operators			
User Personnel			
Functional Team Leader			
Quality Assurance			
LAN Administrator			
Telecommunications Personnel			
Microcomputer Support			
IS FEES OUTSIDE VENDOR			
Private Consultants			
Installation			
IS FEES ITS			
IS TRAINING/EDUCATION			
COMPUTER CENTER CHARGES			
DATA ENTRY/CONVERSION			
SOFTWARE ACQUISITIONS			
IS RELATED RENTALS			
HARDWARE MAINTENANCE			
SOFTWARE MAINTENANCE			

PROJECT COST CHECKLIST

BUDGET ITEM	ONETIME (✓)	ANNUAL (✓)	DESCRIPTION
CONTRACTUAL SERVICES - TC			
COMPUTER EQUIPMENT/HARDWARE			
Local Area Network Components			
Mid-Range Systems			
Microcomputers			
Printers			
Modems			
Controllers			
Terminals			
Other Peripherals			
TELECOMMUNICATIONS HARDWARE			
NETWORK SERVICES			
CABLING			
INTEREST ON LEASE-PURCHASE PAYMENTS			
OTHER			

PROJECT COST CHECKLIST

POSITION	NUMBER WORKDAYS X COST PER WORKDAY = COST PER EMPLOYEE		
	Number of Workdays	Cost Per Workday	Cost Per Employee

PROJECT COST WORKSHEET
INITIAL (Onetime) COSTS

Planning Phase:

Project Phase Being Planned: Analysis

Uncertainty Factor:

BUDGET ITEM	YEAR 1 Low	YEAR 1 High	YEAR 2 Low	YEAR 2 High	YEAR 3 Low	YEAR 3 High	YEAR 4 Low	YEAR 4 High	YEAR 5 Low	YEAR 5 High	TOTAL Low	TOTAL High
IS Personnel Costs												
User Personnel Costs												
IS Fees - Outside Vendor												
IS Fees - ITS												
IS Training/Education												
Computer Center Charges												
Data Entry												
Software Acquisitions												
Capital Outlay - DP												
Capital Outlay - TC												
Other Project Costs												
TOTAL INITIAL COSTS												

PROJECT COST WORKSHEET
INITIAL (Onetime) COSTS

Planning Phase:

Project Phase Being Planned: Design

Uncertainty Factor:

BUDGET ITEM	YEAR 1 Low	YEAR 1 High	YEAR 2 Low	YEAR 2 High	YEAR 3 Low	YEAR 3 High	YEAR 4 Low	YEAR 4 High	YEAR 5 Low	YEAR 5 High	TOTAL Low	TOTAL High
IS Personnel Costs												
User Personnel Costs												
IS Fees - Outside Vendor												
IS Fees - ITS												
IS Training/Education												
Computer Center Charges												
Data Entry												
Software Acquisitions												
Capital Outlay - DP												
Capital Outlay - TC												
Other Project Costs												
TOTAL INITIAL COSTS												

PROJECT COST WORKSHEET
INITIAL (Onetime) COSTS

Planning Phase:

Project Phase Being Planned: Development/Implementation

Uncertainty Factor:

BUDGET ITEM	YEAR 1 Low	YEAR 1 High	YEAR 2 Low	YEAR 2 High	YEAR 3 Low	YEAR 3 High	YEAR 4 Low	YEAR 4 High	YEAR 5 Low	YEAR 5 High	TOTAL Low	TOTAL High
IS Personnel Costs												
User Personnel Costs												
IS Fees - Outside Vendor												
IS Fees - ITS												
IS Training/Education												
Computer Center Charges												
Data Entry												
Software Acquisitions												
Capital Outlay - DP												
Capital Outlay - TC												
Other Project Costs												
TOTAL INITIAL COSTS												

PROJECT COST WORKSHEET
ANNUAL OPERATING COSTS

BUDGET ITEM	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	TOTAL
IS Personnel Costs											
User Personnel Costs											
IS Fees - Outside Vendor											
IS Fees - ITS											
IS Training/Education											
Computer Center Charges											
Data Entry											
IS Related Rentals											
Hardware Maintenance											
Software Maintenance											
Contractual Services - TC											
Capital Outlay - DP											
Capital Outlay - TC											
Subsidies, Loans & Grants											
Other Project Costs											
TOTAL ANNUAL COSTS											

PROJECT BENEFITS CHECKLIST

	ONETIME BENEFIT (✓)	ANNUAL BENEFIT (✓)	DESCRIPTION
INCREASED REVENUE			
Increase agency revenue			
Increase federal or grant funds			
AVOIDED COSTS			
Avoid additional onetime costs			
Avoid additional annual costs			
REDUCED COSTS			
Reduce agency labor			
Reduce contract labor			
Reduce materials/supplied			
Inventory reduction			
Reduce work space			
Increase work efficiency			
Increase resource efficiency			
Increase information accuracy			
Reduce processing time			
Reduce response time			
Reduce training			
Reduce software charges			
Reduce maintenance			
IMPROVED SERVICES			
Increase service to the public			
Increase flexibility			
Improve staff morale			
Provide additional information			
Reduce error rate			
Improve accuracy			
Better public image			
Improve credibility			
Provide faster decision making			
Improve accountability			
Improve management			
Improve analysis of trends			
Improve forecasting ability			
Speed information flow			
Provide better management			
GOVERNMENT MANDATES			
Satisfy federal requirements			
Satisfy state requirements			

BENEFIT CLASSIFICATION WORKSHEET

BENEFIT DESCRIPTION	MEAS. (✓)	DIR. ATT. (✓)	INC. REV. (✓)	DEC. COST (✓)	CLASSIFICATION	UNCERTAINTY FACTOR	ONETIME BENEFIT	ANNUAL BENEFIT	ONETIME LOW	ANNUAL LOW
1.										
2.										
3.										
4.										
5.										
6.										
A. Totals										
1. Increased Revenue Benefits (Hard)										
2. Decreased Costs Benefits (Hard)										
3. Subtotal (Hard)										
B. Soft Benefits										
C. Total Benefits										

INTANGIBLE CONSIDERATIONS FORM

INTANGIBLE BENEFIT 1

DESCRIPTION:

MEASURES:

ASSUMPTIONS:

RESPONSIBILITY:

INTANGIBLE BENEFIT 2

DESCRIPTION:

MEASURES:

ASSUMPTIONS:

RESPONSIBILITY:

INTANGIBLE BENEFIT 3

DESCRIPTION:

MEASURES:

ASSUMPTIONS:

RESPONSIBILITY:

POTENTIAL RISK FACTORS

Risk Factor	High Risk	Normal Risk	High (✓)	Normal (✓)	N/A (✓)
Behavioral Risks					
Management Participation	Management not actively involved	Management committed to project			
User Support	Users are not committed to project	Strong user sponsorship			
User Participation	Minimum user participation	User personnel actively participating in project			
Project Management Risks					
Project Length	Over 1 year	1 year or less			
Project Team Size	Over 10 people	10 people or less			
Project Manager Experienced	No prior experience in this type project	Experience in this type project			
Cost/Benefit Analysis	The project estimates used to calculate the cost/ benefit analysis are not based on ITS guidelines	The project estimates are based on quotes and the analysis has been approved by ITS			
Operational Risks					
Mainline Impact	Major impact on agency's goals	Minimal impact on agency's goals			
User Impact	Significant impact on daily user operations	Minimal impact on user daily operations			
Number of Outside Entities to Coordinate	2 or more	Less than 2			
Scheduled Completion	Absolute deadline with little delay tolerance because other development depends on the completion	Completion dates are set, but no other development or processing depends on completion			
Technical Risks					
Hardware/Software	Vendor, equipment, or software does not have a proven record of performance	Vendor and/or specific equipment or software has proven performance			
System Complexity/ New Technology	Pioneering, new hardware/software, extensive software modifications	No significant unique or new considerations, minor software modifications			
Project Size	More than 1,000 workdays	Less than 1,000 workdays			
Functional Risks					
Project Team Experience	Project team has inexperienced personnel or lack of required skills for project	Project team staffed with experienced personnel with required technical skills			
% of Time Key Members Dedicated to Project	Less than 50%	Over 50%			
Quality of Data to Convert	Complex data conversion requirements or questionable data integrity	Data conversion is straight-forward			

RISK MEMORANDUM FORM

AREA THAT POSES RISK	RISK DESCRIPTION
RATINGS	
SERIOUSNESS:	**PROBABILITY:**

MANAGEMENT OF RISK	RESPONSIBILITY

FINANCIAL SUMMARY WORKSHEET

COST/BENEFIT	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	TOTAL
A. Hard Dollar Benefits											
1. Increased Revenue - Onetime											
2. Increased Revenue - Annual											
3. Decreased Costs - Onetime											
4. Decreased Costs - Annual											
5. Total Quantifiable Benefits											
B. Project Costs											
1. Initial Costs											
2. Annual Costs											
3. Total Costs											
C. Net Benefit (Cost)											
D. Cumulative Benefit (Cost)											
E. Soft Dollar Benefits											
1. Onetime											
2. Annual											
3. Total Soft Benefits											
F. Net Benefit (Cost) with Soft Benefits											
G. Cumulative Benefit (Cost) with Soft Benefits											
H. Year of Payback	**(Hard)**		**(Soft)**								

Cost/Benefit Calculations

Total Quantifiable Benefits - Total Costs = Net Benefit

Net Benefit from Year 1 + Net Benefit from Year 2 = Cumulative Benefit for Year 2 *Repeat for Years 3 through 10.

Net Benefit + Total Soft Benefits = Net Benefit with Soft Benefits

Net Benefit with Soft Benefits from Year 1 + Net Benefit with Soft Benefits from Year 2 = Cumulative Benefit with Soft Benefits for Year 2 *Repeat for Years 3 through 10